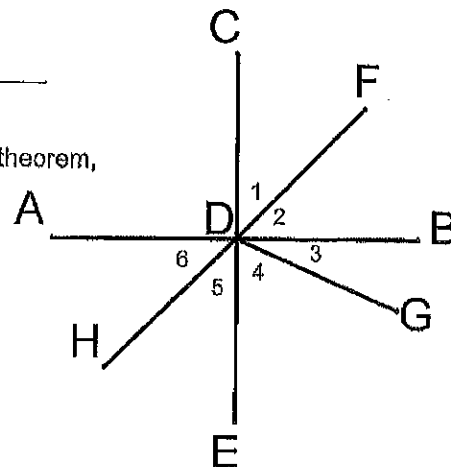


Name _____ Date _____
201 Chapter 2 Worksheet

Justify the following statements with a definition, postulate, property, theorem, etc...

1. SAP $AD + DB = AB$
2. AAP $m\angle 1 + m\angle 2 = m\angle CDB$
3. + If $AD = BD$ and $CD = DE$, then $AD + CD = BD + DE$.
4. Vert. Angs $\angle 2 \cong \angle 6$
5. def of bis If DF bisects $\angle CDB$, then $m\angle 1 = m\angle 2$.
6. def of midpt If D is the midpoint of AB , then $AD = DB$.
7. def of \perp line If $CD \perp AB$, then $\angle CDB$ is a right angle.
8. def of rt \angle If $\angle CDB$ is a right angle, $m\angle CDB = 90$.
9. def of Lin Pair Look at the picture, $\angle ADF$ and $\angle FDB$ are a linear pair.
10. Lin Pair Post (LPP) If $\angle ADF$ and $\angle FDB$ are a linear pair, then $\angle ADF$ and $\angle FDB$ are supplementary.
11. def of compl. If $m\angle 1 + m\angle 2 = 90$, then $\angle 1$ and $\angle 2$ are complementary.
12. \cong compl. thm If $\angle 4$ and $\angle 5$ are complementary and $\angle 6$ and $\angle 5$ are complementary, then $\angle 4 \cong \angle 6$.
13. \cong suppl. thm If $\angle 1$ and $\angle 2$ are supplementary and $\angle 2$ and $\angle 3$ are supplementary, then $\angle 1 \cong \angle 3$.



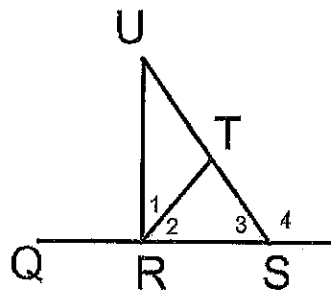
Complete with always, sometimes, or never.

14. Two points A lie in exactly one line.
15. Three points S lie in exactly one line.
16. Three points S lie in exactly one plane.
17. Three collinear points N lie in exactly one plane.
18. Two planes S intersect.
19. Two intersecting planes N intersect in exactly one point.
20. Two intersecting lines A intersect in exactly one point.
21. Two lines S intersect in exactly one point.
22. Two intersecting lines A lie in exactly one plane.

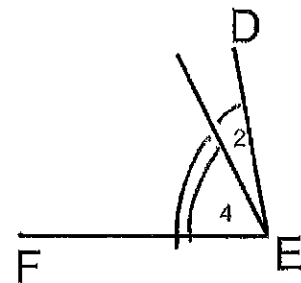
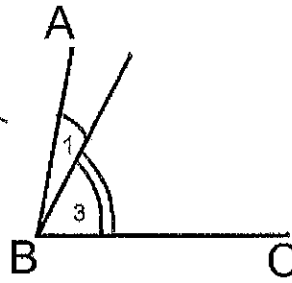
Write proofs for the following problems.

23. Given: $\angle 2$ and $\angle 4$ are supplementary
Prove: $\angle 2 \cong \angle 3$

<p><u>S</u></p> <p>① _____</p> <p>② $\angle 3 + \angle 4$ are Lin. Pair</p> <p>③ $\angle 3 + \angle 4$ are suppl.</p> <p>④ $\angle 2 \cong \angle 3$</p>	<p><u>R</u></p> <p>① Given</p> <p>② def of Linear Pair</p> <p>③ Lin Pair Post</p> <p>④ \cong Suppl. Thm</p>
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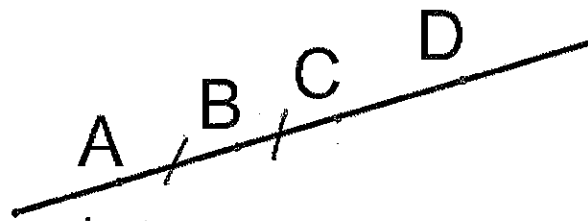


24. Given: $\angle 1 \cong \angle 2$; $\angle 3 \cong \angle 4$
 Prove: $\angle ABC \cong \angle DEF$



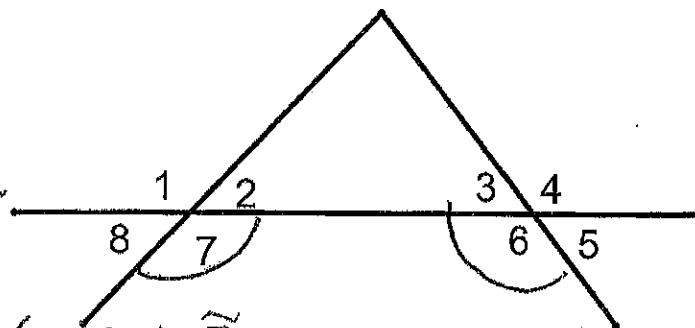
- | | |
|---|---|
| <p>S</p> <p>①</p> <p>② $m\angle 1 = m\angle 2$; $m\angle 3 = m\angle 4$</p> <p>③ $m\angle 1 + m\angle 3 = m\angle 2 + m\angle 4$</p> <p>④ $m\angle 1 + m\angle 3 = m\angle ABC$
 $m\angle 2 + m\angle 4 = m\angle DEF$</p> <p>⑤ $m\angle ABC = m\angle DEF$</p> <p>⑥ $\angle ABC \cong \angle DEF$</p> | <p>R</p> <p>① Given</p> <p>② def of \cong</p> <p>③ Add</p> <p>④ A.A.P.</p> <p>⑤ Subst</p> <p>⑥ def of \cong</p> |
|---|---|

25. Given: B is the midpoint of \overline{AC}
 Prove: $AB + CD = BD$



- | | |
|---|---|
| <p>S</p> <p>①</p> <p>② $BC = AB$</p> <p>③ $BC + CD = BD$</p> <p>④ $AB + CD = BD$</p> | <p>R</p> <p>① Given</p> <p>② def of midpoint</p> <p>③ S.A.P.</p> <p>④ Subst</p> |
|---|---|

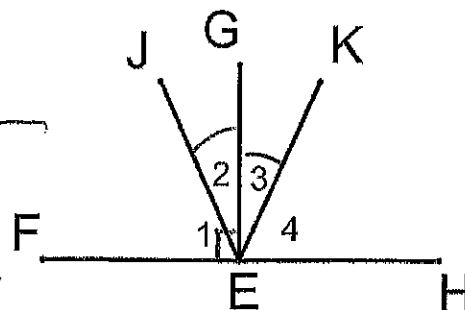
26. Given: $\angle 7 \cong \angle 6$
 Prove: $\angle 1 \cong \angle 4$



- | | |
|---|---|
| <p>S</p> <p>① $\angle 7 \cong \angle 6$</p> <p>② $\angle 7 \cong \angle 1$
 $\angle 6 \cong \angle 4$</p> <p>③ $\angle 1 \cong \angle 4$</p> <p>③ $m\angle 7 = m\angle 1$
 $m\angle 6 = m\angle 4$
 $m\angle 7 = m\angle 6$</p> <p>④ $m\angle 1 = m\angle 4$</p> | <p>R</p> <p>① Given</p> <p>② Vert. \angles are \cong</p> <p>③ Subst</p> <p>③ def \cong</p> <p>④ Subst</p> |
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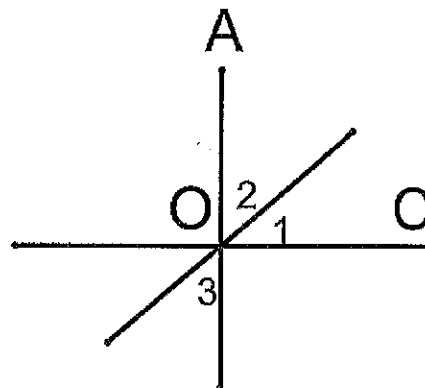
⑤ $\angle 1 \cong \angle 4$ ⑤ def of \cong

27. Given: $\overline{EG} \perp \overline{FH}$; \overline{EG} bisects $\angle JEH$
 Prove: $m\angle 1 = m\angle 4$



S.	R.
①	① Given
② $\angle FEG$ and $\angle HEG$ are rt \angle	② def of \perp line
③ $\angle 1 + \angle 2$ are compl. $\angle 3 + \angle 4$ are compl.	③ Complement Thm.
④ $\angle 2 \cong \angle 3$	④ def of \angle Bis
⑤ $\angle 1 \cong \angle 4$	⑤ \cong compl. Thm
⑥ $m\angle 1 = m\angle 4$	⑥ def of \cong

28. Given: $\angle 1$ and $\angle 2$ are complementary
 Prove: $\overline{AO} \perp \overline{OC}$



S.	R.
①	① Given
② $m\angle 1 + m\angle 2 = 90$	② def of compl.
③ $m\angle 1 + m\angle 2 = m\angle AOC$	③ A.A.P
④ $m\angle AOC = 90$	④ Subst
⑤ $\angle AOC$ is a rt \angle	⑤ def of $\text{Rt } \angle$
⑥ $\overline{AO} \perp \overline{OC}$	⑥ def of \perp lines